

**EFFECT OF NON-PERFORMING LOANS ON FINANCIAL
PERFORMANCE OF DEPOSIT TAKING MICROFINANCE
INSTITUTIONS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for any award in any other university

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This research project has been presented for examination with my approval as the University supervisor

Signature  Date 21 November 2022

PROF. CYRUS IRAYA

DEDICATION

I dedicate this project to my family.

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I acknowledge the support and guidance from my supervisor, Prof. Cyrus Iraya, in project writing. He guided me with objectivity and shared his expertise and knowledge with me. I also acknowledge my family and friends. I thank my university lectures and colleagues in the faculty of business and management science at university of Nairobi.

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LIST OF ABBREVIATIONS

AMFIK	Association of Microfinance Institutions of Kenya
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
CBN	Central Bank of Nigeria
CRR	Cash Reserve Ratio
DTMFIs	Deposit Taking Microfinance Institutions
FDR	Financing to Deposit Ratio
FE	Fixed Effects
GDP	Gross Domestic Product
HELB	Higher Education Loans Board
INF	Inflation
KWFT	Kenya Women Finance Trust
MFIs'	Microfinance Institution
NDIC	Nigeria Deposit Insurance Corporation
NPF	Non-Performing Financing
NPL	Non-Performing Loan
NPLR	Non-Performing Loan Ratio
NPLR	Non-Performing Loans Coverage Ratio

OJK	Indonesia Financial Services Authority
OLS	Ordinary Least-Squares
PMR	Provision Maintenance Ratio
RE	Random Effects
ROA	Return On Assets
ROE	Return On Equity
TLR	Total Loans Ratio

ABSTRACT

This paper sought to determine the effect of non-performing loans on financial performance of deposit taking microfinance institutions in Kenya. It was based on the moral hazard, bad management, loanable fund and asymmetry theories. The paper adopted descriptive design to collect data from thirteen DTMFIs in Kenya joining 2016 and 2021. Annual secondary data was collected. Data was mined from bank supervision reports from central bank of Kenya as well as annual reports of individual firms using a data collection schedule. STATA-14 was used for generation of descriptive and regression statistics. Diagnostic tests of normality, model specification, Heteroscedasticity and Multicollinearity were done to check on assumptions of the regression model. From the descriptive statistics, in the period joining 2016 and 2021, the firms showed negative return of equity. Non-performing loans ratio was high for the selected firms. From the regression analysis, NPLs had nonsignificant direct effect on financial performance of DTMFIs indicating that NPLs have no effect on financial performance of DTMFIs in Kenya. Capital structure as measured by debt-to-equity ratio showed a negative significant effect on financial performance. This indicates that capital structure has a negative effect on financial performance of DTMFIs in Kenya. An increase in capital adequacy was discovered to decrease financial performance insignificantly. This indicates that capital adequacy has an insignificant effect on financial performance of DTMFIs in Kenya. Firm liquidity showed a negative and insignificant regression coefficient with financial performance. This shows that firm liquidity has an insignificant effect on financial performance of DTMFIs in Kenya. This paper recommends that DTMFIs in Kenya increase their income levels; maintain an optimal level of NPLs in their portfolio; reduce the debt levels in their capital structure; increase the level of deposits in their firms; and reduce the liquidity levels of their firms. Similar researchers can do a similar paper based on other factors affecting financial performance; focus on other sectors other than DTMFI sector; adopt different measures for NPL and financial performance; adopt different periods of paper; adopt quarterly or semi-annual data; and adopt other data analysis methods.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

A healthy financial sector is critical for development and growth of any economy (Katircioglu, Katircioğlu & Altinay, 2018). A key indicator of a healthy financial sector is the level of non-performing loans (NPLs) among the financial institutions. An unhealthy financial sector displays high levels of NPLs within the whole and sub sectors in an economy. The NPLs are the causes of poor performance among financial firms due to poor loan performance. When debtors fail to repay their loans, the companies involved suffer financial losses. There will be a finite amount of funds available to run the business and to lend to other prospective borrowers. If non-payment persists for a long time, microfinance institutions will be saddled with massive bad debts, which will force them to reduce their workforce, halt their market expansion, and eventually collapse (Kariuki, 2016).

This paper was anchored on the moral hazard, bad management, loanable fund and asymmetry theories. According to bad management hypothesis, in response to the rise in loan default, deposit taking microfinance institutions (DTMFIS) management tends to inject more resources into managing and monitoring bad loans. This informed the survey in that NPLs reduce bank performance through increased costs of loans management. The loanable funds theory informs the researcher on the influence that loanable funds which are reduced by non-performing loans influence the performance of DTMFIs. Adverse selection theory states that a firm may not be able to separate a good and bad borrower which may result to the firm issuing loans to bad borrowers who may not pay with good borrowers left out. This would in turn increase loan default levels within the firm which may create financial performance

issues. Per the moral hazard dilemma, borrowers will be more inclined to defaults if there are no repercussions for his forthcoming loan requests.

Deposit taking microfinance institutions (DTMFIs) have been experiencing poor financial performance in the recent years (CBK, 2021). The sector has shown increasing losses in the last ten years with majority of the individual DTMFIs making losses or experiencing reduction in their profit levels (AMFIK, 2021). The firms have also been experiencing increased levels of NPLs in the last 10 years (CBK, 2021). Given that the sector is very critical in the provision of deposit services and other microfinance services, it would be critical to check on whether the NPLs in the firms is the cause of the financial performance challenges facing the firms.

1.1.1 Non-Performing Loans

According to MFI Act (2008), NPLs refer to all loans that do not generate income for more than 90 days and are disclosed as supplemental financial information. In addition, Manyuanda (2014) describes NPLs as those assets in the organization which are no longer generating income. Also, Kavata (2016) further describes NPLs as a credit facility which the principal amount and interest have remained past due for a specified period. The researcher also referred NPLs as non-performing assets. Non-performing loans reflects how profitable a financial institution is, hence decrease in the ratio of NPLs shows improvement in asset quality of microfinance institutions (Stuti & Bansal, 2013).

According to Kavata (2016) non-performing loans in loan portfolio affect liquidity, profitability and solvency position of financial institutions. The researcher further stated that financial crises are closely associated with non-performing loans. NPLs reduce microfinance net worth and make it tricky to invest funds in risky projects and it lowers microfinance risk

taking capacity (Warue, 2013). Bad loans lead to financial institution liquidity crisis, which hurts the entire economy by sparking DTMFIs to be hesitant to provide credit (Hou, 2007). When there is a high rate of default risk, financial institutions are more likely to undertake partnerships to enhance asset quality, which reduces loan granting. High levels of NPLs force financial institutions to increase provision for bad loans, lowering revenue and reducing funds available for new lending, harming the finance industry as it struggles to expand its working capital (Oganda & Mogwambo, 2019). During periods of low resource output in the economy, the loan retirement process slows down in financial firms, resulting in bad loans.

NPLs can be measured by the value of NPLs as a proportion of the total gross loans. Higher delinquency ratios show that a firm is not recovering loan disbursed as expected (Chossudovsky, 2015). Another measure of NPLs is by use of NPLs coverage ratio (NPLR) which relate to ratio of allowance for probable loses on NPLs to total NPLs (Kavata, 2016). Other measures include loan loss provision ratio (Nugroho, Arif & Halik, 2021), cost to asset ratio (Husna & Satria, 2019) and credit to deposit ratio (Hakim, 2017). For the purpose of this paper, NPLs ratio was used in the measurement of NPLs among DTMFIs.

1.1.2 Financial Performance

Financial performance is an objective gauge of the way skillfully an organization can utilize its resources to make income (Mombo, 2013). Financial performance is stipulated as the measure of how a company maximizes profits from the utilization of available resources (Barauskaite & Streimikiene, 2021). According to Feng and Wang (2000), financial performance is the evaluation process of financial characteristics of a firm with the primary purpose of determining its efficiency and performance from its financial statements

and reports. Manyuanda (2014) describes financial performance as a general measure of an organization overall financial status over certain period.

Tariq et al. (2014) emphasizes that performance (Financial) is a key factor for smooth operations of a corporation in a dynamic setting. Financial performance is also necessary for a financial institution for continued operations and reasonable returns for shareholders (Gitman, Juchau & Flanagan, 2015). Financial performance is a fundamental goal that provides complete and informed decisions (Grzyl, Miszewska-Urbańska & Apollo, 2017). It can be used to compare industries in aggregate or to evaluate similar enterprises in the same industry.

Most researchers use return on assets (ROA) to gauge financial performance as it gives investors the idea of how effective the firm is in converting money invested into net income (Rezazadeh, 2019). The other measure of financial performance is return on equity (ROE) (Ceylan et al, 2018). Pradhan, Shyam and Khadka (2017) measured financial performance through return on assets, return on equity and net profit margin. For this survey, financial performance was gauged by Return on Equity.

1.1.3 Non-Performing Loans and Financial Performance

The management of non-performing loans, per Mohd Karim and Sallahundin (2010), is related to higher operating costs, resulting in rapidly reducing capital growth in the concerned financial firms. Non-performing loans (NPLs) minimize credit institutions liquidity, disrupt credit expansion, and slow real-economy growth, which display direct consequences for institution performance. As per idea of loanable funds, NPLs decreased the volume of funds for loaning, which in turn decreased the number of loanings made to consumers (Storm, 2020). This in turn reduce financial performance. Owing to worry that

consumers' deposits would be used to balance their outstanding debts, the NPLs also diminish deposit accounts. Where loans are non-performing, bankers would earn no interest on loans hence lowering the net income levels of microfinance institution (Luqman, 2014). Therefore, non-performing loans would contribute towards poor financial performance indicators.

Empirically, non-performing loans and financial performance has shown no defined relationship. Nyarko-Baasi (2018) discovered that loan defaults displayed a direct impact on financial performance. Gabriel, Victor and Innocent (2019), however, discovered that non-performing loans had negative influence on financial performance. Findings were similar to those of Kingu, Macha and Gwahula (2018); and Mutiembu and Thuo (2019) who spotted a inverse linkage joining NPLs and financial performance. On the other hand, Akbar (2021) discovered that NPLs and financial performance had no significant link. This creates the need for an investigation into the effect of NPLs on financial performance to confirm their relationship.

1.1.4 Deposit Taking Microfinance Institutions in Kenya

According to Mombo (2013), MFIs are financial instruments like loans, savings, insurance and other financial products that are designed only to the poor. Mombo further noted that the creation of such institutions in the economy was for the economic benefit of the poor and to mitigate poverty. Deposit-taking microfinance institutions (DTMFIs) are mfis which mobilise public deposits, provide tiny lines of credit, and provide other microfinance services. The Microfinance Act of 2006 introduced MFIs in Kenya with the regulations of 2008 allowing for microfinance institutions to take deposits in Kenya. Deposit Taking Micro Financing Institutions (DTMFIs) are characterized as discoveredations whose significant

business is to provide depositing avenues for poor households and individuals. In Kenya, there are thirteen registered DTMFIs (CBK, 2021).

Over the past years, deposit taking microfinance sector has witnessed reduction in their financial performance metrics. The sector has made losses in the last five years with the last time it made profit was in 2015 (AMFIK, 2021). This has been attributed to majority of the DTMFIs making losses with the ones making profits experiencing reduction in the profit levels. According to CBK (2021), only four DTMFIs out of the 13 (30.7%) posted profits in their performance in 2020. The rest (69.2%) recorded losses. Central Bank of Kenya also noted that the major DTMFIs experienced increased losses compared to the previous period. Central Bank of Kenya (2021) indicated that over the last few years there has been a rapid rise in NPLs in the deposit taking MFIs attributed to the reduced capacity of the borrowers to pay. Deposit taking MFIs in Kenya face a challenge of creating a balance joining achieving financial growth and contributing towards poverty reduction hence this may expose the firms to the risk of NPLs.

1.2 Research Problem

Loans form a major element of DTMFI's balance sheet and any variation in its structure affects the entire financial structure (Corbae & D'Erasmus, 2021). The DTMFI is at risk of possible losses and problems with its financial performance due to non-performing loans. They ought to avoid delinquencies at all costs since it lowers bank deposits plus loans disbursements, which results in inferior financial results (Al-Thiban, & Tayachi, 2021). There is need for a continuous review of individual exposures in order to control loan quality and reduce losses.

The performance of microfinance sector marginally improved in year 2020 (CBK, 2021). The DTMFI sector experienced declining financial performance. For example, in 2020, only four DTMFIs declared profits while the other nine recorded losses. Kenya Women Microfinance Bank, that posted a pretax loss of Ksh.525 million, was the largest source of declining financial performance (CBK, 2020). Additionally, the DTMFIs have seen an increase on overall number of NPL accounts recently. For example, KWFT experienced an increase in NPLs from Ksh. 3,483 million in 2019 to Ksh. 4,115 million in 2020. With improved financial performance of DTMFIs the public would benefit from the increased accessibility of funds due to increased loanable funds among the firms. The improved financial performance would also enable the firms to increase their capacity which would call for the employment of more people within the institutions. Further, the improved performance would increase the sectoral contribution to the GDP. The question was whether the NPLs in DTMFIs are the reason for their financial performance level among the DTMFIs.

Globally, Al-Amin, Rahman and Hossain (2021) who studied the effects of NPLs on financial performance of banks in Bangladesh discovered NPLs had an inverse effect on financial performance. Other studies include Akbar (2021) who discovered an insignificant effect in their paper in Indonesian Microfinance Banks; Gabriel, Victor and Innocent (2019) who discovered an inverse impact of NPLs on financial performance of commercial banks in Nigeria; and Musengamana (2019) who discovered a positive link around NPLs and financial performance of microfinance institutions in Rwanda.

In Kenya, Kitonyi (2019) did a survey on NPLs and financial performance of MFIs in Kenya. This paper which has adopted similar concepts and context with the current paper has shown

key methodological gaps which need to be filled. First, the paper adopted cross sectional data which may give different results from panel data which was adopted in this research. The paper also based the analysis on data from period joining 2013 and 2017 which may be obsolete in 2022. The paper also involved only four microfinance institutions with the current paper involving thirteen microfinance institutions. The paper also adopted different ratios measuring NPLs with the current paper bringing in control variables to get a clear picture of how NPLs affect financial performance of microfinance institutions. Other studies relate to Araka, Mogwambo and Otieno (2018); and Chege, Olweny and Opuodho (2018) who studied the effect of NPLs on financial performance of commercial banks in Kenya displaying a contextual and methodological gap. Lelgo and Obwogi (2018) studied the effect of financial risk on financial performance of MFIs in Kenya. This investigation displayed a conceptual gap in that it focused on financial risk as the independent variable other than NPL as it is for the current research. The studies show that knowledge and research gaps are in existence. The question is: what is the effect of NPLs on financial performance of DTMFIs in Kenya?

1.3 Research Objective

To determine the effect of non-performing loans on financial performance of deposit taking microfinance institutions in Kenya.

1.4 Value of the Study

This research will be important to a number of players. It will be important as a source of literature, a basis for future studies, a basis for policy and basis for strategy formulation by DTMFIs. For the scholars, this paper will be a source of literature for their academics. This paper would enable them to easily handle assignments relating to NPLs and financial performance especially among DTMFIs. This would enable them handle their assignments

with ease. For the researchers, this paper will be a basis for further research. In understanding how NPLs affect financial performance in DTMFIs, the researchers would be able to identify various research gaps. The researchers can fill the research gaps by undertaking similar research in future.

For policy makers this paper would serve as a basis for policy formulation in an attempt to improve financial performance of DTMFIs through NPLs management. The policies would be based on the findings which would create an understanding and improvement on performance through NPLs. The management of DTMFIs would find this survey as a source of information on which the strategies on improving financial performance can be based. Understanding this findings would enable the management to come up with practical strategies for improved firm financial performance through effective NPL management. The management can also adopt the recommendations in this paper to enhance their firm's financial performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This part contained theoretical reviews where theories supporting the survey are discussed. This part of the paper also contains the determinants of financial performance of DTMFIs as well as the empirical studies related to NPL and financial performance. The conceptual framework was also given where the relationship among the variables is shown. A summarization of the literature closed the section.

2.2 Theoretical Review

2.2.1 Adverse Selection Theory

Adverse selection was spotted in the 1970s by three researchers: Akerlof (1970), Spence (1973) and Stiglitz (1981). According to the asymmetry information theory, distinguishing around good and bad depositors can be difficult, resulting in adverse selection and moral hazard issues. Arrow (1970) and Pauly (1968) proposed the moral hazard, which states that a borrower will default unless there are repercussions for future loan applications. This is due to loan companies' difficulty estimating the amount of wealth borrowers will have racked up by the due date of a debt, rather than at the time of application. If lending institutions are unable to evaluate the borrowers' financial situation, the latter may be enticed to default on the loan. To prevent this, lenders will raise interest rates, ultimately leading to the industry's collapse (Alary & Goller, 2001). Moral hazard has resulted in significant nonperforming loan buildup in DTMFIs.

In any transaction in which one of the involved parties seem to have more info than the other and hence has the capacity to produce a much more informed choice, financial markets

display information asymmetries. In the market, the participant with more info about the particular object to be transacted has a better chance of negotiating the best terms for the transaction than the other party. The party with less knowledge of the same specific item to be transacted is thus in a position to make either a correct or incorrect choice about the transaction. Averse selection has led to significant loan defaults in financial institutions (Akmel, 2019). Asymmetric information, according to Ivashina (2009), is a concern in financial markets like borrowing and lending. In such markets, the borrower has far more knowledge of his financial situation than the lender. The lender has difficulty determining if the borrower is likely to default.

The hypothesis has drawn criticism for a number of reasons. In the financial markets, hardly everybody is in darkness, according to Cowgill and Tucker (2019). Financial institutions look for clients to give loans to because companies might understand whatever those clients might require. Considering the abundance of data from 3rd parties like Consumer Reports, Underwriters Laboratory, and credit reporting agencies, Tchamyou (2019) believes that model was based solely on a single party's neglect are imperfect.

This theory was critical in this regard because the repercussions of asymmetry and insider loaning, and also unsecured loans to governing elite, have exacerbated moral hazards, leading to even greater NPLs and thus credit risk, that ultimately leads to DTMFI poor performance. CRBs that minimise information asymmetry mitigate the problem of adverse selection and moral hazard. As a result, in attempt to bargain extra skillfully and steer clear of NPLs, that hurt corporate performance, DTMFIs need possess additional information on the precise goods they trade with customers.

2.2.3 Loanable Fund Theory

Dennis Robertson (1934) and Bertil Ohlin (1937) developed the loanable funds concept in the 1930s. Loanable fund theory is an evolving optimizing theory of financial institution operation that incorporates insights from production theory, financing, and asset allocation philosophies. Investment risk defines the rate of return on loans and borrowed capital by banking firms, as well as discount rate often used in the calculation of present value of future profits earned in portion by banks. Risk, on the other hand, affects the volume of service delivered to just the extent that various risk investments necessitate varying amounts of cognitive processing. The model shows that loanable funds are just an intermediate input that passes through financial institution, while true firm value added is only services facilitating provision of funds (Akan & Tevfik, 2020).

In a bank's core optimization problem, the approach establishes discriminative power joining the usages of financing and the productive resources of value addition (Storm, 2020). In brief, this concept adds to the substantial literature on DTMFI performance by settling the basic question about how to quantify financial institution output. Furthermore, this framework can fix some long-standing conceptual discussions in the literary works on performance, especially one about the contribution of deposit accounts (Henriques et al, 2020). It illustrates that deposit monies are "material" inputs in the creation of new loans, but that deposit transaction services are provided by DTMFIs. It also identifies the valuation aspects of a bank's performance, which offers a theoretical discoveredation for assessing firm performance (Storm, 2020).

The hypothesis is criticized for combining monetary and non-monetary variables. Combining real variables such as saving and investment with financial variables like bank credit and

dishoarding without adjusting the level of income is incorrect (Bertocco, 2013). The loanable funds concept is based on the presumption that national income remains constant. In reality, as the level of investment modifications, so does the level of income (Bibow, 2001). The idea is ideal as a result.

This theory offered the scholar with information relevant to paper about how NPLs affect the performance of DTMFIs through reducing lendable reserves. Financial institutions incur decreased finances accessible for providing funds to customers whenever the amount of NPLs is large. As client lending are the DTMFIs' primary source of income, these is likely to have an impact on overall financial performance.

2.2.2 Bad Management Theory

Berger and DeYoung (1997) proposed the bad management theory, which states that as defaulting rates rise, bankers tend to devote more assets to monitoring and evaluating nonperforming loans. In the longterm, this means that operational costs will rise faster than interest earned, leading to an increased cost-to-income ratio, a sign of weak bank management (Vardar & Özgüler, 2015; Louzis, Angelos & Metaxas, 2010).

Several scholars have disputed this hypothesis. Murphy (2019) highlighted that financial institutions require their management to execute wise judgments on NPLs, and noted this won't always be their case. However, Ozili and Outa (2017) observed that many financial institutions, including microcredit, might eventually shut down if poor NPL monitoring was widespread. This idea is therefore unworkable because a management could aim to lower company costs relating to NPLs to improve financial performance.

This influenced the investigation since it showed that NPLs boost loan servicing expenses, which lower bank performance. Therefore, DTMFIs must effectively monitor npls to prevent

large expenses associated with missed payments that could lower the profits on additional lending. This demonstrated this same theory's applicability in addressing how NPLs affect DTMFIs' financial results.

2.3 Determinants of Deposit Taking Microfinance Institutions in Kenya

2.3.1 Non-Performing Loans

Non-performing loans relates to loans in defaulting. Non-performing loans are significant because they have an impact on financial institutions' financing (Fafack, 2013). As a result, NPLs have gotten more attention, with the recognition that a huge portion of NPLs inside the banking system can lead to bank run and is a sign of economic downturn. This is attributable to the fact that any financial institution's financial results is calculated on the basis of profitability and NPLs show an inverse effect on the bottom line due to provisions that the institution is compelled to make attributable to NPLs (Ezeoha, 2011).

Non-performing loan is gauged by loan loss provision ratio (Nugroho, Arif & Halik, 2021); non-performing loans ratio (Patwary & Tasneem, 2019) and NPL to total assets ratio (Oudat & Ali, 2020). Empirical research has shown the effect of NPLs and financial performance to be ambiguous. This is because the studies have shown different relationships joining the two. Musengamana (2019) discovered a direct link joining non-performing loans and financial performance. However, Gabriel, Victor and Innocent (2019) spotted an inverse effect of NPLs on the financial performance while Akbar (2021) spotted no effect of NPLs on financial performance. This creates the need to check on the effect of NPLs on financial performance of DTMFIs.

2.3.2 Capital Structure

The financial framework of a firm is stipulated as capital structure. Essentially, it is a company's mix of debt and equity capital. It is also seen as a combination of a wide range of long-term funding sources and equity securities, such as a firm's reservoirs and surpluses (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). An optimal capital structure is one that reduces a business's cost of capital while also increasing shareholders value (Niu, 2008). The capital structure of a company is critical because it affects the company's ability to meet demands of its own stakeholders. The capital structure of a company describes how it bankrolls its investments and operations in general. It is made up primarily of a mix of debt and equity, as well as all other sources of funding available to the company, such as retained earnings (Margaritis & Psillaki, 2007). As per finance theory, a company's capital structure has an impact on its cost of capital and, as a result, on its financial performance. Because the cost of capital is used as a yardstick for a company's capital budgeting decisions, having the right mix of debt and equity is critical to outmatch.

Capital structure decisions have great effect on financial performance of the firm. Theoretically, a positive relation exists around a firm's debt level and its performance. Theoretical literature states that higher debt levels, in the context of lower agency costs, reduces inefficiency thereby leads to enhanced firm performance. Empirically, mixed results on the relationship exist. Mbetwa (2021) discovered a direct link exists around capital structure and financial performance. This was supported by Obuobi et al (2020) who spotted a positive effect of capital structure on financial performance. Karanja (2018) spotted that an inverse link existed joining capital structure and financial performance. However, Putri and

Rahyuda (2020) discovered no significant effect of capital structure on financial performance.

2.3.3 Capital Adequacy

Capital adequacy demonstrate the efficiency and capacity of financial institution to manage their risks by measuring and controlling it (Almazari & Alamri, 2017). Adequate capital is defined as the amount that cushions financial institutions from economic shocks by absorbing losses in the event they occur (Musyoka, 2017). According to Fatima (2014), sufficient capital adequacy makes certain that a financial institution has an appropriate level of capital for expansion of its business and its net assets are sufficient cushion it during financial downturns without risk of insolvency. Shareholder's funds to total assets ratio measures the capital adequacy of microfinance institutions.

Talibong and Simiyu (2019) indicated that capital adequacy was a key factor influencing financial performance of a firm. Research shows that capital adequacy affects performance positively or negatively with some research showing no effect. Ichsan et al (2021) discovered that capital adequacy had a direct effect on financial performance. Thiongo and Kiama (2018) discovered an inverse relation joining capital adequacy and financial performance. However, Irawati, Maksum, Sadalia and Muda (2019) spotted that an insignificant link existed around capital adequacy affects financial performance.

2.3.4 Firm Liquidity

Liquidity refers to a bank's ability to meet its immediate obligations, such as those owed to depositors, as they mature or become due. Liquidity risk in a deposit-taking microfinance emerges once repayments are overdue for payment or cash requirements really aren't met in such a timeous and cost-effective manner, as per Idama et al. (2014). As per Ongore and

Kusa (2013), financial institutions with a large amount of liquid assets have a small capital buffer target and will be more ready to engage in risk taking. As per Ayaydin and Karakaya (2014), a financial institution's liquidity challenges can be overcome by keeping a large amount of cash on hand, that can also help the organization stay stable. High liquid assets that back demand liabilities of a financial institution lead to reduced liquidity risk and margins of the financial institution. Microfinance institutions having insufficient liquidity are less immune towards future uncertainty, are unlikely to meet growth targets, have an increase in risk around the portfolios and delays in refinancing (Brom, 2009). For DTMFIs to reduce liquidity risk, each branch will need to draft a daily funding plan that matches the cash inflows from deposits and loan repayments with the cash outflows (Idama et al., 2014). Liquidity of a DTMFI is measured through liquid assets to total deposits ratio.

Empirical studies have shown conflicting outcomes on the effect of firm liquidity and financial performance. Abubakar, Sulaiman and Haruna (2018) spotted that a positive link existed joining firm liquidity and financial performance. Hasanudin, Nurwulandari, Adnyana and Loviana (2020) supported the findings where they spotted a positive effect of firm liquidity on financial performance. Otherwise, Matar and Eneizan (2018) spotted an insignificant negative association around the two. This creates the need for analyzing the effect of firm liquidity on financial performance.

2.4 Empirical Studies

2.4.1 International Studies

Al-Amin, Rahman, and Hossain (2021) undertook a hypothetical investigation of effect of non-performing loans on the financial performance of all Bangladeshi banking institutions. To do so, researchers looked at data from the previous twenty-three years, from 1997 to

2019, to see how non-performing loan ratios (NPLR), capital adequacy ratios (CAR), inflation (INF), and provision maintenance ratios (PMR) affected return on assets (ROA). Bangladesh Bank's financial statements are used to collect data that has been analysed utilizing OLS and VAT models in STATA 11. The OLS regression revealed that NPLR, was statistically significant in explaining return on assets.

Akbar (2021) did a paper on the effect of capital adequacy ratio, non-performing financing, and financing to deposit ratio on the financial performance of Islamic MFBs in Indonesia. The participants of this research was 130 Islamic MFBs in Indonesia that were certified by Indonesian Financial Services Authority (OJK) joining 2017 and 2019, with a sample size of 130. For hypothesis testing, the analytical approach used multiple linear regressions. The findings revealed that CAR and FDR of Islamic MFBs in Indonesia had a positive and significant impact on ROA. Non-Performing Financing (NPF), on the other hand, had an inverse and insignificant impact on ROA.

Between 1985 and 2016, Gabriel, Victor, and Innocent (2019) inspected the impact of NPLs on the financial performance of Nigerian banking institutions. The data was collected from the Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Deposit Insurance Corporation (NDIC) publications for various years, and the survey used multivariate regression methods to assess it. The investigation discovered that the ratio of NPLs to total loans (NPL/TLR) as well as the Cash Reserve Ratio (CRR) had a statistical significance significant inverse impact on ROA). The above findings suggest that the high level of NPLs had a negative impact on financial performance.

Musengamana (2019) explored the correlation around NPLs and MFIs' financial performance in Rwanda through descriptive research. The participants in this research were 25 staff

members of Umurenge Sacco who were chosen at random. The survey's instrument was self-administered, and a series of questions were developed. Nonperforming loan ratio showed a positive and significant coefficient with financial performance of the microfinance institution. The influence of NPLs on bank profitability in Tanzania was probed by Kingu, Macha, and Gwahula (2018). This survey used a cause-and-effect research design and panel data from 16 Tanzanian commercial banks from 2007 to 2015. Descriptive and OLS analytical methodologies were used in the survey. Non-performing loans are discovered to be adversely affiliated to profitability.

2.4.2 Local Studies

Kitonyi (2019) investigated NPLs and MFIs' financial performance. CBK's yearly publication were utilised in the investigation as secondary data. Other secondary sources included books, journals, online reading and other resource materials based on financial performance and non -performing loans. The investigation employed a descriptive research design and adopted use of cross-sectional statistics from the years 2013 to 2017. The report's target group consisted of four MFIs licenced to accept deposits and lend money. The sample was chosen using the census method. Excel Spreadsheet and Spss had been utilized to generate the statistics. In addition, regression technique was used to assess the impact of NPLs on financial performance. Despite loans being the primary source of income, the investigation discovered that NPLs had significantly direct influence on financial performance.

The effect of financial risk on the financial performance of Kenyan microfinance institutions was investigated by Lelgo and Obwogi (2018). A quantitative approach was used in this investigation. The target group was 13 certified MFIs licenced. The research was collected

from secondary sources recovered from MFIs' audited financial statements for the years 2013 and 2017. The research was premised on numerical data. Financial risk had a positive influence on financial performance.

Mutiembu and Thuo (2019) did a survey on relationship joining non-performing loans and financial performance of higher education loans board. The paper employed a case paper approach and targeted the senior HELB staff working at the Anniversary Towers HELB offices in Nairobi. Primary data was used; reference was made to the HELB's financial reports on the trend of nonperforming loans, loan disbursement levels, and loan recovery amount over a period of five years, 2012-2016. The research findings revealed majority (57.9%) of the respondents were males. Nearly half (47.4%) of the respondents worked for a duration of 6-9 years. The results further showed that loan penalties imposed on defaulters had a highest positive significant effect on financial performance of Higher Education Loans Board while Loan loss provision which forms a significant portion of the operating expenses had a negative effect on the financial performance. Listing of defaulters on Credit Reference Bureau had a positive but an insignificant effect on financial performance.

Chege, Olweny, and Opuodho (2018) investigated the impact of NPL management practises on big banks' financial performance. The descriptive research design was utilised in this survey. The report's targeted audience was three heads of business units from Kenya's selected commercial banks. 65 people were chosen using stratified sampling method. NPL management practices showed a direct impact on financial performance as per the outcomes. In addition, the analysis discovered that debt collection practises had a positive impact on financial performance.

2.5 Conceptual Framework

The conceptual framework explains the relationship joining the predictor and the dependent variables. The independent variable was Non Performing Loans while the dependent variable was financial performance. The control variables were capital structure, capital adequacy and liquidity.

Independent Variable

Dependent Variable

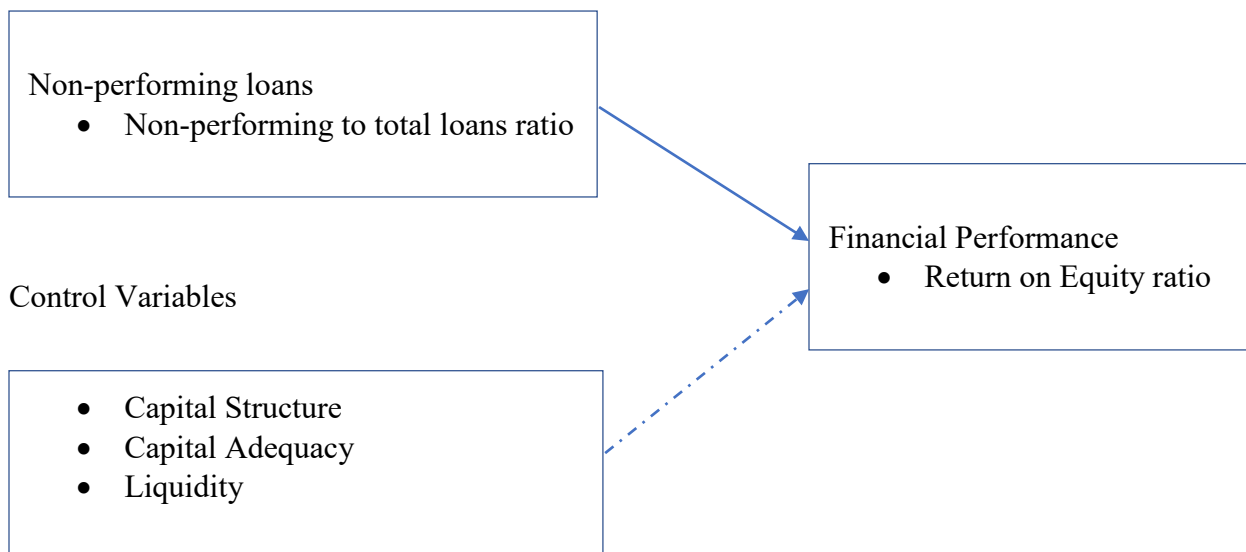


Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

This research reviewed various empirical / theoretical literature. There are various research gaps emanating from the literature that has been reviewed in this chapter. Araka, Mogwambo and Otieno (2018) focused on commercial banks showing that a contextual gap exists. The paper also used different measures of the concepts compared to the current research. This may give different results. The paper also adopted different methodologies indicating a methodological gap. Kitonyi (2019), on the other hand, despite adopting similar concepts and context with the current paper showed key methodological gaps which need to be filled.

First, the paper adopted cross sectional data which may give different results from panel data which was adopted in this research. The paper also based the analysis on data from period joining 2013 and 2017 which may be obsolete in 2022. There is need to adopt most recent data to check on whether the results would be different. The paper also involved only four microfinance institutions with the current paper involving thirteen microfinance institutions. This would provide sufficient data to establish the effect of NPL on financial performance. This research also adopted different ratios measuring NPLs with the current paper bringing in control variables to get a clear picture of how NPLs affect financial performance of microfinance institutions.

Lelgo and Obwogi (2018) also adopted a different concept as independent variable (financial risk) despite the paper basing the analysis on a similar context. Contextual gaps also existed in the research by Mutiambu and Thuo (2019) who focused on Higher Education Loans Board; with Chege, Olweny and Opuodho (2018) focusing on commercial banks. This paper pursued to address these gaps by looking at the effect of non-performing loans on financial performance of deposit taking microfinance institutions in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter contained methods adopted in the investigation, specifically, research design, targeted population and data gathering methods. The chapter also contained the data analysis methods where diagnostic tests, analytical model and significance tests were discussed.

3.2 Research Design

This research paper made use of descriptive design. It's a design where the researcher sought to describe the variables without manipulating the outcomes. The design also guided the researcher in establishing the status of the variables by answering the what and why question. This design fitted this research in that it enabled the researcher to describe the status of NPLs and financial performance of DTMFIs. This design also allowed the scholar to institute the cause-effect relationship among variables. This made the design relevant to this research in that it enabled the researcher to establish the effect of NPLs on financial performance of DTMFIs.

3.3 Population

This investigation targeted all the DTMFIs in Kenya joining 2016 and 2021. The period joining 2016 and 2021 saw many of the DTMFIs experiencing high levels of NPLs. The period also saw increased number of DTMFIs being acquired due to financial performance challenges which made them unable to fund their operations. Hence, the researcher thought it to be the perfect period to base this research on. As per CBK reports, there were thirteen (13) DTMFIs in Kenya that existed joining 2016 and 2021. All the 13 DTMFIs were involved in the research due to the small number.

3.4 Data Collection

Annual secondary data was mined for six years joining 2016 and 2021. The researcher based this research on data from all the 13 DTMFIs. This would give 78 data points which would be used for analysis. The data on gross NPLs, gross total loans, total equity, total assets, total deposits and profit after tax was collected from the bank supervision reports. The data on shareholder's funds and current assets was collected from annual reports of individual firms. The bank supervision and firm annual reports was got from the CBK. The data was gathered using a data collection schedule on which the data was recorded based on the variables and year. The data collection schedule recorded data relating to gross NPLs, gross total loans, shareholder's funds, total assets, current assets, total equity, total deposits and profit after tax.

3.5 Data Analysis

Data gathered from the financial statements was cleaned to remove any gaps and errors in the data. The data was then be coded and entered into STATA-14 for generation of statistics. The statistics generated by STATA for analysis included both descriptive and inferential statistics. To describe non-performing loans and financial performance, this research adopted descriptive statistics including minimum, maximum, mean and standard deviation. However, to determine effect of NPLs on financial performance, researcher undertook regression analysis.

3.5.1 Diagnostic Tests

Normality test was undertaken to establish if variables followed normal distribution. The research project used Shapiro Wilk test to undertake normality. Null hypothesis is that the data is normally distributed. The null hypothesis is not rejected where Shapiro Wilk

statistic show significance values above 0.05. Hypothesis is rejected, and an assumption made that the data does not follow a normal distribution, if significance values are below 0.05.

The model specification was done to establish best model to use for analysis. Hausman test was adopted for model specification. The test's null hypothesis is that random effect model is the preferred model. This is not rejected if significance value is above 0.05. The hypothesis is rejected if significance value falls below 0.05.

Heteroscedasticity in the data was checked to establish whether the error term is constant over time tested using Breusch-Pagan test. It assumed that the error term is constant over time. Where significance value is above 0.05, null hypothesis that the error term is constant over time is not rejected. Where the value is below 0.05, null hypothesis is rejected and assumed that heteroscedasticity exist in the data.

Multicollinearity was tested to determine whether a linear relationship is in existence around the predictor variables. This was tested using Variance Inflation factor (VIF) which showed the extent to which the variance has been inflated. The test assumed that a VIF value below 5 indicates that Multicollinearity is not there as the variance has been inflated at very low levels. If the VIF value is above 5, the test assumes that there is Multicollinearity and if it surpasses 10 there is extreme Multicollinearity and other tests have to be done to remove the Multicollinearity in the data. This can be done by dropping the highly correlated predictors.

3.5.2 Analytical Model

Inferential analysis was done via a panel regression model. Model involved predictor variables relating to non-performing loans, capital structure, capital adequacy and liquidity. The dependent variable was financial performance as gauged by return on equity. Panel

regression model was adopted as the research was based on panel data. The model took the form of:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon_{it}$$

Where ;

Y_{it} Financial performance as measured by return on equity of firm i at time t

α Constant

β_1 - β_4 Regression coefficients of the predictor variables

X_{1it} NPLs as gauged by NPLs ratio of firm i at time t

X_{2it} Capital structure as measured by debt-to-equity ratio

X_{3it} Capital adequacy as measured by shareholder's funds to deposits ratio of firm i at time t

X_{4it} Firm liquidity as gauged by liquid assets to total deposits ratio of firm i at time t

ε_{it} Error term

3.5.3 Significance Tests

Statistical tests were done to test the significance of the model and individual variables. The paper adopted F-statistics from ANOVA to find model's significance. Where F-statistics show significance values below 0.05, the model is assumed to be significant and the results can be used to make conclusions for the paper. On the other hand, where the F value show a significance value above 0.05, the model may not fit the data hence it may not be the best model for the data.

3.6.2 Measurement of Variables

Table 3.1: Measurement of Study Variables

Variable	Type	Indicator	Measurement
Non-performing loans	Independent	NPL ratio	Gross NPL/Gross loans
Capital Structure	Control	Debt-Equity ratio	Gross total Loans/Total Equity
capital adequacy	Control	Shareholder's funds to deposit ratio	Shareholder's fund / total deposits
Liquidity	Control	Liquid assets to total deposits ratio	Liquid assets/total deposits
Financial Performance	Dependent	Return on Equity	Profit after tax/Total Equity

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This paper sought to determine the effect of non-performing loans on financial performance of deposit taking microfinance institutions in Kenya. This paper presents the findings based on the research objective as well as the variables. This is based on data from thirteen DTMFIs that existed joining 2016 and 2021. The firms with full data were involved with those with incomplete data excluded from the analysis. Descriptive and regression analysis was done in this paper. The researcher finally gives a discussion of the findings at the end of this chapter. For this paper; Y represents financial performance, X1 represent NPLs, X2 represents capital structure, X3 represents capital adequacy while X4 represents firm liquidity

4.2 Descriptive Statistics

Descriptive statistics were used to describe the data in terms of mean, standard deviation, minimum and maximum. This would enable the researcher to show the status of the variables adopted in the paper.

Table 4.2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Y	78	-32.21945	187.1183	-1487.5	355.5556
X1	77	70.07121	190.5573	0	1500
X2	78	277.1833	285.9341	-292.3077	1725
X3	78	185.6911	404.623	1.048655	2665
X4	78	81.0302	241.8416	.8658009	1610

From the descriptive statistics as represented by table 4.2, financial performance (return of equity) had a mean of -32.2195% with a standard deviation of 187.1183 in the period joining 2016 and 2021. This shows that DTMFIs had a negative return on equity for the period. It also indicates that DTMFIs in Kenya lost 32 cents for every investment in capital. This is a sign that DTMFIs in Kenya made losses within the period. The minimum return on equity for the period was -1487.5%% with the maximum return on equity being 355.5556%. This indicates that DTMFIs in Kenya had a very high variation in their return on equity across the firms within the period joining 2016 and 2021.

Non-performing loans showed an average value of 70.0712% joining for the period joining 2016 and 2021. This shows that the DTMFIs had a NPL ratio of 70% for the period. The NPL showed a standard deviation of 190.5573. The minimum NPL ratio was 0 with a maximum of 1500%. This indicates that NPL ratio varied so much across the DTMFIs that existed within the period.

Capital structure (debt-to-equity ratio) averaged at 277.1833% with a standard deviation of 285.9341 for the period joining 2016 and 2020. The maximum debt-to-equity ratio was 1725% with a minimum ratio of -292.3077%.

Capital adequacy showed an average mean of 185.6911%. The standard deviation was 404.623% for the capital adequacy. The minimum was 1.0487% and a maximum of 2665%. This shows a high variation in the capital adequacy among DTMFIs with some having a very low with others have very high capital adequacy ratio.

Firm liquidity showed an average value of 81.0302% This shows that the DTMFIs had enough liquid assets to cover the deposits as they fall due. The minimum value was 0.8658

and maximum value of 1610 with a standard deviation of 241.8416%. This shows that there was a high variation in the liquidity across the firms and the years.

4.3 Diagnostic Tests

The paper undertook various diagnostic tests. The diagnostic tests related to normality, model specification, Heteroscedasticity and Multicollinearity.

Table 4.3: Normality Test

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
Y	78	0.37517	42.007	8.178	0.00000
X1	77	0.28939	47.272	8.431	0.00000
X2	78	0.88952	7.428	4.387	0.00001
X3	78	0.41869	39.081	8.020	0.00000
X4	78	0.29665	47.286	8.437	0.00000

Normality test was done to establish whether the variable data was normally distributed using Shapiro Wilk test. The null hypothesis is that data is normally distributed which is not rejected where statistics showed significance are above 0.05. From the data findings, the variables showed significance values of less than 0.05. Hence the null hypothesis was rejected. The paper, therefore, assumes that the data for all the variables used in the paper is not normally distributed.

Table 4.4: Model Specification

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) random	(B) fixed		
X1	-.0312125	.0013532	-.0325657	.0375905
X2	-.5023422	-.5814661	.0791239	.0278574
X3	-.1446479	-.1134467	-.0312012	.
X4	.0461203	.0047704	.0413499	.0611197

b = consistent under Ho and Ha; obtained from regress
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)' [(V_b-V_B)^(-1)] (b-B)
 = 14.86
 Prob>chi2 = 0.0050
 (V_b-V_B is not positive definite)

The model specification test was done to establish best model to use for analysis. Housman test was for model specification joining random and fixed effect model. The test's null hypothesis is that random effect model is preferred. The null hypothesis is not rejected where significance value is above 0.05 and vice versa. From the analysis, the p-value was 0.0050 which is less than 0.05. Hence, the researcher rejects the null hypothesis and assumes that the fixed effect model is the preferred model.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance
 Variables: fitted values of Y

chi2(1) = 28.91
 Prob > chi2 = 0.1909

Figure 4.2: Heteroscedasticity Test

Heteroscedasticity was checked to establish whether the error term is constant over time. This was done through Breusch-Pagan test. The null hypothesis is that the error term is constant over time (homoscedasticity). Where significance value is above 0.05, null hypothesis is not rejected and vice versa. From the results, the significance value for the statistics is greater than 0.05. Hence we reject the null hypothesis and assume that heteroscedasticity does not exist in the data.

Table 4.5: Multicollinearity Test

Variable	VIF	1/VIF
X3	1.38	0.724991
X4	1.26	0.792468
X2	1.15	0.872790
X1	1.06	0.946931
Mean VIF	1.21	

This was tested using Variance Inflation factor (VIF) which indicates the extent to which variance is inflated. The null hypothesis of the test is that Multicollinearity is not in existence in the data. Where VIF value is above 5, the test assumes that there is low Multicollinearity which is acceptable as the variance has been inflated at very low levels. From the findings, the data showed VIF values below 5 with a mean VIF of 1.21. Hence the researcher does not reject the null hypothesis and assumes that Multicollinearity is not a problem for the variable data.

4.4 Regression Analysis

In order to establish the effect of non-performing loans on financial performance of deposit taking microfinance institutions in Kenya, regression analysis was done. A panel regression model based on annual secondary data was used for analysis.

Table 4.6: Model Summary

Fixed-effects (within) regression	Number of obs	=	77
Group variable: Code	Number of groups	=	13
R-sq:	Obs per group:		
within = 0.7318	min =		5
between = 0.0608	avg =		5.9
overall = 0.4936	max =		6
	F(4, 60)	=	40.93
corr(u_i, Xb) = -0.4105	Prob > F	=	0.0000

From the regression model summary, the fixed effect model fitted the data. This is because the calculated F statistics (40.93) was greater than the critical F value (2.53). On the other hand, the f statistics showed a pvalue of 0.000 which was less than 0.05. This shows that the fixed effect model was significant and therefore the researcher can make conclusions based on the results from the regression analysis. The fixed effect is a within regressor model indicating that the within Squared will be used for interpretation of results. The model shows a within R squared value of 0.7318 indicating that NPL, capital structure, capital adequacy and firm liquidity contributed 73.18% to financial performance of DTMFIs. This shows that they are the major factors influencing financial performance of DTMFIs in Kenya. Other factors contributed the remaining 26.82% of the change in financial performance of DTMFIs.

Table 4.7: Regression Coefficients

Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
X1	.0254418	.0731043	0.35	0.729	-.1207885	.1716721
X2	-.6277174	.0493826	-12.71	0.000	-.7264973	-.5289374
X3	-.0411802	.0874479	-0.47	0.639	-.216102	.1337416
X4	-.0101045	.0781289	-0.13	0.898	-.1663856	.1461766
_cons	148.8802	23.52254	6.33	0.000	101.8281	195.9322

From the regression analysis results

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon$$

was fitted into;

$$Y_{it} = 148.8802 + 0.0254X_{1it} - 0.6277X_{2it} - 0.0412X_{3it} - 0.0101X_{4it}$$

Where ;

Y_{it} Financial performance as measured by return on equity of firm i at time t

β_1 - β_4 Regression coefficients of the predictor variables

X_{1it} NPLs as measured by NPLs ratio of firm i at time t

X_{2it} Capital structure as measured by debt-to-equity ratio

X_{3it} Capital adequacy as measured by shareholder's funds to deposits ratio of firm i at time t

X_{4it} Firm liquidity as measured by liquid assets to total deposits ratio of firm i at time t

From the regression coefficients, the model shows a constant value of 148.8802. This indicates that holding the predictor variables (NPL, capital structure, capital adequacy and firm liquidity) constant, the financial performance of DTMFIs would stand at 148.8802 for the period joining 2016 and 2021. When holding the other predictor variables constant, a unit increase in NPLs would cause an increase in financial performance of DTMFIs by 0.0254 with a pvalue of 0.729. This shows that NPLs has a positive insignificant effect on financial performance of DTMFIs.

Holding other predictor variables constant, a unit increase in capital structure would decrease financial performance of DTMFIs by 0.6277 (pvalue=0.000). This shows that capital structure has a negative significant effect on financial performance of DTMFIs. On the other hand, holding other predictor variables constant, a unit increase in capital adequacy would decrease financial performance of DTMFIs by 0.0412 (pvalue=0.639). This indicates that capital adequacy had a negative insignificant effect on financial performance of DTMFIs. However, a unit increase in firm liquidity would decrease financial performance of DTMFIs by 0.0101 (pvalue=0.898). This shows that firm liquidity had an insignificant effect on financial performance of DTMFIs.

4.5 Discussions

From the regression analysis, the paper discovered that increase in NPLs caused an increase in financial performance of DTMFIs. However, the increase was insignificant. This shows that NPLs has no significant effect on financial performance. The findings concur with the findings of Akbar (2021) spotted no effect of NPLs on financial performance. However, the findings differ with those of Musengamana (2019) who discovered a significant direct link; and Gabriel, Victor and Innocent (2019) spotted an inverse significant effect of NPLs on the financial performance.

The findings showed that increased shareholder's funds to deposits ratio as a measure of capital structure would decrease financial performance. The decrease was significant. This shows that capital structure has a negative effect on financial performance. The findings are similar to the findings of Karanja (2018) who spotted that an inverse link existed joining capital structure and financial performance. However, the findings differ with those of

Mbetwa (2021) and Obuobi et al (2020) who spotted a positive effect of capital structure on financial performance. They also differ with the findings of Putri and Rahyuda (2020) who discovered no significant effect of capital structure on financial performance.

On the other hand, regression analysis shows that an increase in capital adequacy would lead to decreased financial performance of DTMFIs. The decrease in financial performance was insignificant as a result of the increased capital adequacy. This indicates that capital adequacy has a negative insignificant effect on financial performance. The findings concur with the findings of Irawati et al (2019) who spotted that an insignificant link existed around capital adequacy affects financial performance. However, the findings differed with the findings of Ichsan et al (2021) who discovered a direct effect; and Thiongo and Kiama (2018) who discovered a negative relationship joining capital adequacy and financial performance.

Regression analysis shows that increase in firm liquidity would decrease financial performance of DTMFIs. The decrease was insignificant indicating that firm liquidity had an insignificant negative effect on financial performance. The findings concur with the findings of Matar and Eneizan (2018) spotted an insignificant negative association around firm liquidity and financial performance. However, the findings differed with those of Abubakar, Sulaiman and Haruna (2018); and Hasanudin et al (2020) who spotted that a positive link existed joining firm liquidity and financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the paper. The chapter also gave conclusions and recommendations for the paper. Limitations and recommendations for future studies were also discussed in this chapter.

5.2 Summary of Findings

From the descriptive statistics, in the period joining 2016 and 2021, the firms showed a mean financial performance (return of equity) -32.2195% indicating poor performance among the DTMFIs. The regression model showed that NPL, capital structure, capital adequacy and firm liquidity contributed to 73.18% of the financial performance of DTMFIs indicating that they were the major factors.

For the period joining 2016 and 2021, Non-performing loans (NPL ratio) showed a mean of 70.0712%. This indicates that the largest portion of the gross loans among DTMFIs was non-performing. This indicates that there is a high level of NPL among DTMFIs in Kenya. From the regression analysis, NPLs showed an insignificant positive effect on financial performance of DTMFIs. This indicates that NPLs have no effect on financial performance of DTMFIs in Kenya.

Capital structure (debt-to-equity ratio) showed a mean of 277.1833% for the period joining 2016 and 2020. This indicates that the DTMFIs had a very high level of debt in their capital structure. This may increase the cost of debt which may supersede the benefits of debt hence

creating capital structure problems. The regression analysis results indicated that increase in capital structure would decrease financial performance of DTMFIs by more than 50%. Capital structure showed a negative significant effect on financial performance. This may be accrued to the high debt level among the DTMFIs.

Joining 2016 and 2021, capital adequacy showed an average mean of 185.6911%. This indicates that DTMFIs had more deposits compared to shareholder's funds. The regression analysis showed that an increase in capital adequacy would decrease financial performance of DTMFIs insignificantly. This indicates that capital adequacy had an insignificant effect on financial performance of DTMFIs.

Firm liquidity showed an average value of 81.0302% joining 2016 and 2020. This shows that the DTMFIs had enough current assets to cover the deposits as they fall due. The regression analysis showed that an increase in firm liquidity would decrease financial performance insignificantly. This shows that firm liquidity had an insignificant effect on financial performance.

5.3 Conclusions

From the descriptive statistics the firms showed a negative mean on financial performance (return of equity). This paper, therefore, concludes that DTMFIs in Kenya are performing poorly and have negative returns on equity. The regression model showed that NPL, capital structure, capital adequacy and firm liquidity contributed to 73.18% of the financial performance. This paper concludes that NPL, capital structure, capital adequacy and firm liquidity are the major factors influencing financial performance of DTMFIs in Kenya.

Descriptive findings showed that non-performing loans as measured by NPL ratio showed a mean of 70.0712%. The paper concludes that DTMFIs in Kenya have high levels of NPLs in their loan portfolio. From the regression analysis, NPLs had an insignificant positive regression coefficient. This paper, hence, concludes that NPLs have no effect on financial performance of DTMFIs in Kenya.

Capital structure as measured by debt-to-equity ratio averaged at 277.1833%. This leads us to the conclusion that Kenyan DTMFIs have more debt in their capital structure compared to equity. The researcher also concludes that the DTMFIs in Kenya are highly leveraged. Regression analysis showed that capital structure had a negative and significant regression coefficient with financial performance. Hence, capital structure has a negative significant effect on financial performance of DTMFIs in Kenya.

Capital adequacy showed an average mean of 185.6911%. This paper concludes that DTMFIs in Kenya have a high capital adequacy. As a result, the DTMFIs in Kenya have a better chance of surviving a financial crisis or other unexpected losses. The regression analysis showed that capital adequacy had an insignificant regression coefficient with financial performance. Hence, the paper concludes that capital adequacy has no effect on the financial performance of DTMFIs in Kenya.

Firm liquidity showed an average value of 81.0302%. The paper concludes that DTMFIs in Kenya have a high level of liquidity hence have enough current assets to cover the deposit liabilities as they fall due. The regression analysis showed that firm liquidity had an insignificant negative regression coefficient with financial performance. This paper concludes that firm liquidity has an insignificant effect on financial performance of DTMFIs in Kenya.

5.4 Policy Recommendations

From the descriptive statistics the paper discovered that DTMFIs in Kenya had negative returns on assets. This paper recommends that DTMFIs in Kenya increase their income levels in order to enhance their financial performance. The DTMFIs also need to reduce the equity financing by selling equity. This would increase return on equity.

The paper showed that DTMFIs in Kenya have high levels of NPLs in their loan portfolio. The regression analysis showed that NPLs have a positive but insignificant effect on financial performance of the DTMFIs in Kenya. This paper recommends that DTMFIs in Kenya maintain an optimal level of NPLs in their portfolio. This would enable the firms to experience improved financial performance as the effect turns positive. The paper also recommends that DTMFIs in Kenya consider other factors other than NPLs in their strategy to improve financial performance.

The paper discovered that DTMFIs in Kenya have very high debt-to-equity ratios indicating that they are highly leveraged. From the regression, capital structure had a negative effect on financial performance of DTMFIs in Kenya. This paper recommends that DTMFIs in Kenya reduce the debt levels in their capital structure. This would enable the firms to get an optimal level of debt which would reduce the negative effects on return on assets hence improving the financial performance.

The paper discovered that DTMFIs in Kenya have a high capital adequacy which has no effect on the financial performance of DTMFIs in Kenya. This means that despite the DTMFIs in Kenya reducing the shareholder's funds to deposits ratio as a measure of capital adequacy would have no significant decrease in financial performance. This paper

recommends that the management of DTMFIs in Kenya reduce the shareholder's funds to deposits ratio through increasing the level of deposits in their firms.

The paper discovered that DTMFIs in Kenya have a high level of liquidity. The regression analysis showed that firm liquidity had an insignificant negative effect on financial performance of DTMFIs in Kenya. The paper recommends that the management of DTMFIs in Kenya reduce the liquidity levels of their firms. This can be done by increasing the total deposits within their firms. The management also need to get a balanced liquidity ratio to enjoy improved financial performance of their firms.

5.5 Limitations of the Study

The paper faced various limitations. The paper was based on NPL and financial performance in DTMFIs in Kenya. This limited the paper generalization as other variables that may affect financial performance were assumed. Other sectors were also left out in the paper which created a limitation for the research. The paper was also limited by the measures that were adopted for the variables.

The paper was also limited by the period of investigation. The paper focused on the period joining 2016 and 2021. Other periods may be exploited to compare results. The paper was also limited by the annual secondary data that was adopted in the research. Further, the methods adopted in data analysis limited the paper. This paper adopted descriptive and regression analysis. The adoption of other methodologies may give different results.

5.6 Recommendations for Future Studies

Based on the limitations of the paper, suggestions were made for further research. The paper was based on NPL and financial performance in DTMFIs in Kenya. Similar researchers can do a similar paper based on other factors affecting financial performance. Similar research can also focus on other sectors other than DTMFI sector. The paper was limited by the measures that were adopted for the variables. Similar studies should adopt different measures for NPL and financial performance.

The paper was limited by the period of study joining 2016 and 2021. Similar studies should adopt different periods of paper. The paper was also limited by the kind of data adopted in the paper (annual panel data). Similar studies should adopt quarterly or semi-annual data to compare results. They also should focus on cross sectional or time series to check whether the results would be the same. Further, the methods adopted in data analysis limited the paper-descriptive and regression analysis. Other similar studies need to adopt other data analysis methods like T-tests, correlation among others.

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APPENDICES

Appendix I: Deposit taking Microfinance Institutions in Kenya (2016-2021)

1. Caritas Microfinance Bank Limited
2. Century Microfinance Bank Limited
3. Choice Microfinance Bank Limited
4. Daraja Microfinance Bank Limited
5. Faulu Microfinance Bank Limited
6. Kenya Women Microfinance Bank Limited
7. Maisha Microfinance Bank Limited
8. Rafiki Microfinance Bank Limited
9. Key Microfinance Bank Limited
10. SMEP Microfinance Bank Limited
11. Sumac Microfinance Bank Limited
12. U & I Microfinance Bank Limited
13. Uwezo Microfinance Bank Ltd

Appendix II: Data Collection Sheet

Year	Gross Non- performing loans	Gross Loans	Total Assets	Shareholder's Funds	Total Equity	Liquid Assets	Total deposits	Profit after tax
	Ksh.	Ksh.	Ksh.	Ksh.		Ksh.	Ksh.	Ksh.
2016								
2017								
2018								
2019								
2020								
2021								